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Milk Consumption and Food Service Patterns in Selected Eastern and Midwestern Institutions

MARKETING RESEARCH REPORT NO. 800

U.S. DEPARTMENT OF AGRICULTURE
ECONOMIC RESEARCH SERVICE
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Washington, D.C. June 1967

SUMMARY

Purchases of fluid dairy products in 1964 averaged 13 percent of the year's total food costs in 251 eastern and midwestern institutions. Depending on the type of institution, the amount spent ranged between 6 and 22 percent of the year's total food expenditures. Purchases of evaporated, dry, and nonfat milk averaged 0.2 percent or less of the total food cost.

In two midwestern metropolitan areas (Madison and Milwaukee, Wis.), the institutions surveyed purchased approximately 9 percent of the total fluid whole milk sold in the market, 5 percent of all cream, 3.5 percent of skim milk, 3.2 percent of evaporated and condensed milk, and 2 percent of dry powdered milk. Institutions surveyed in three eastern metropolitan areas (Philadelphia, Baltimore, and Washington), bought 3 percent of the total fluid milk, 2 percent of the cream, evaporated and condensed milk, and 1.5 percent of the dry powdered milk.

Fresh whole milk was the dairy product most used by the institutions surveyed, accounting for about three-fourths of total institutional dairy consumption. Institutions in the Midwest generally used more fluid milk products than those in the eastern areas, while the reverse was true for evaporated milk, dry whole milk, and nonfat dry milk.

Eastern institutions in 1965 paid an average of 18 cents less per quart equivalent for nonfat dry milk than for whole fluid milk, and midwestern institutions paid about 12 cents less. Yet, nonfat dry milk represented only about 4 percent of the total volume of dairy products used by the surveyed institutions.

From 80 to 100 percent of the whole, skim, chocolate, and buttermilk served in institutions was used as a beverage, while the majority of higher fat dairy products (cream, half-and-half) was used as ingredients in food preparation. Also, almost all dry whole milk and nonfat dry milk were used as ingredients.

Combined per capita consumption in institutions of regular whole, 2-percent, and chocolate milk was larger in 1965 than the 1965 U.S. average for per capita whole milk consumption, except in boarding houses and penal establishments. On the other hand, institutional per capita consumption of evaporated and condensed milk and dry powdered milk was lower than U.S. per capita usage of these products, except in penal establishments and nursing homes.

In a review of institutional food service patterns, the study showed that all nursing homes, hospitals, private universities, and penal institutions included in the survey served three meals each day. Other institutions varied in the number of meals served. Cafeteria-type operations were used most frequently as the method of serving meals. About 13 percent of the institutions employed a food service management company to operate their feeding facilities, a practice more prevalent in the East than the Midwest. Differences in food costs per serving between eastern and midwestern institutions apparently were not related to the use of these companies.

MILK CONSUMPTION AND FOOD SERVICE PATTERNS IN SELECTED EASTERN AND MIDWESTERN INSTITUTIONS

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INTRODUCTION

This report deals with use patterns of fluid and dry milk products in selected eastern and midwestern institutions. The research was conducted by the Economic Research Service, U.S. Department of Agriculture, in cooperation with the Agricultural Economics Department, College of Agriculture, University of Wisconsin. The information presented here represents one phase of a broader study of a new dairy product--sterilized milk concentrate. 2/

No previous information was available on current milk consumption patterns (type, quantity, method of use) in institutions, so benchmark data were collected from a sample of selected types of institutions. The data originally were gathered to determine how the new concentrate would fit into the dairy industry's product mix, but the resulting information on milk and milk product use in institutions was valuable independent of the larger study. For the present report, the data were analyzed in relation to total food costs and food service patterns in the sample institutions.

METHODOLOGY

Nine types of institutional feeding operations were selected for study purposes: those operated by boarding houses (including fraternities), nursing homes (including homes for the aged), hospitals, private junior and senior high schools, universities (privately funded), universities (State funded), food service management companies, penal and correctional institutions, and children's homes (including orphanages). The study was limited to these specific types of institutions in order to minimize the effect of any restrictive local laws on the handling and serving of milk.

The metropolitan areas selected for the survey were Philadelphia, Pa.; Baltimore, Md.; and Washington, D.C., in the East, and, in the Midwest, Madison and Milwaukee, Wis. Selection of these metropolitan areas was based on three major factors: the city had to be a major metropolis; it had to be large enough to provide an adequate

1/ Mr. Cropp joined the Agricultural Industries Department, Wisconsin State University, Platteville, Wis., as an Assistant Professor in August 1966.

2/ See p. 21 for a discussion of sterilized milk concentrate.

number of each type of institution selected for study; and the cities had to be located within relatively short distances of each other to permit effective utilization of funds and personnel available for the study.

Institutions included in the survey were chosen at random from lists containing the names and addresses of all institutions of a specific type located within each metropolitan area. These lists were compiled primarily from State and local licensing agencies, departments of education, health departments, and telephone directories. The information obtained from these sources was cross-checked to make the listings as complete as possible.

Ten of each type of institution were selected in each metropolitan area. In instances where less than 10 of a specific type of institution were listed within an area, all were contacted. Provision was made for the selection of alternate units if the selected institution refused to cooperate in the survey.

Information was obtained from 268 institutions by personal interviews in the 5 areas during August, September, and October 1965. Food service managers, cooks, dietitians, purchasing agents, or owners were contacted. In most instances, two or more of these people were asked to provide the data for each institution.

Complete schedules could not be obtained for 12 establishments and, except where noted in the analysis, data for these establishments were not included.

The average size, by type of institution and geographic area, of the institutions included in the survey is presented in table 1. Data in this table indicate that although the average number of people served per meal each day for all institutions combined was quite similar in the eastern and midwestern 3/ institutions--430 in the East, and 406 in the Midwest--nevertheless, significant variations existed within the various institutional categories. For example, eastern privately operated high schools and penal institutions were considerably larger than their midwestern counterparts. Midwestern State-funded universities were considerably larger than those in the East. The other six institutional types were quite similar in size in the East and Midwest.

INSTITUTIONAL FOOD SERVICE

Meals Served

Breakfast was served regularly by 87 percent of all institutions contacted, 94 percent served a noon meal, and 85 percent provided an evening meal. Snacks (a beverage combined with crackers, cookies, cakes, etc., or a beverage alone) were served in slightly more than half of all the institutions (table 2).

All nursing homes, hospitals, private universities, and penal establishments served three meals each day. However, wide variations in the number of meals served by individual establishments within the other institutional groups indicated that many institutions are not three-meal-a-day operations.

Snacks outside of regular meal periods were served in a larger percentage of the nursing homes, hospitals, and children's homes than in any of the other types

3/ For the rest of this report, the term East represents the Philadelphia, Baltimore, and Washington metropolitan areas, while Midwest represents the Madison and Milwaukee metropolitan areas.

Table 1.--Average size of 268 institutions by type surveyed 1/

Type of institution	Number of institutions	Average number of persons served	Number of persons served 2/			
			99 and under	100-499	500-899	900 and over
Boarding houses:						
East	22	71	91.9	4.5	4.5	0.0
Midwest	17	37	94.1	5.9	0.0	0.0
Nursing homes:						
East	29	68	82.8	17.2	0.0	0.0
Midwest	20	72	75.0	25.0	0.0	0.0
Hospitals:						
East	32	510	18.4	59.3	3.1	18.8
Midwest	20	354	30.0	50.0	10.0	10.0
Senior or junior high schools (private):						
East	19	618	10.5	52.6	21.1	15.8
Midwest	6	247	16.7	66.7	16.7	0.0
Universities or colleges (endowed):						
East	18	971	11.1	22.2	22.2	44.4
Midwest	6	829	0.0	50.0	33.3	16.7
Universities or colleges (State):						
East	8	1057	0.0	62.5	0.0	37.5
Midwest	2	8231	0.0	0.0	0.0	100.0
Food service management companies:						
East	10	710	0.0	50.0	30.0	20.0
Midwest	2	850	0.0	50.0	0.0	50.0
Penal institutions:						
East	16	804	31.3	31.3	0.0	37.5
Midwest	3	264	0.0	100.0	0.0	0.0
Children's homes:						
East	30	54	83.3	16.7	0.0	0.0
Midwest	8	50	100.0	0.0	0.0	0.0
All institutions:						
East	184	430	45.6	32.1	7.1	15.2
Midwest	84	406	54.8	32.1	6.0	7.1

1/ Percentages may not add to 100 because of rounding.
2/ Average number of persons served per meal per day.

Table 2.--Meals regularly served by reporting institutions, 1965

Type of institution	Number reporting	Percentage serving			
		Breakfast	Lunch	Dinner	Snack period
		Percent	Percent	Percent	Percent
Boarding houses	38	92.1	60.5	100.0	29.0
Nursing homes	49	100.0	100.0	100.0	80.0
Hospitals	51	100.0	100.0	100.0	88.0
Senior or junior high schools (private)	25	36.0	100.0	36.0	12.0
Universities or colleges (endowed)	23	100.0	100.0	100.0	39.1
Universities or colleges (State)	10	80.0	100.0	100.0	30.0
Food service management companies 1/	12	75.0	100.0	25.0	33.0
Penal institutions	19	100.0	100.0	100.0	10.5
Children's homes and orphanages	38	73.7	97.4	65.8	89.5
All institutions	265	87.2	94.0	84.9	56.6

1/ Feeding operations conducted by food service management companies.

of institutions. More than four-fifths of these types of institutions indicated snacks were served on a regular basis. Residents in these establishments, for the most part, have a special need for supplemental feeding. Less than two-fifths of the other institutions served snacks.

Method of Service

For the approximately 2.75 million meals served by reporting institutions in the week prior to the interviewer's visit, there were significant differences in the serving techniques. Most meals were served in cafeteria style (69.9 percent), and the use of individual trays (14.5 percent) ranked second. The remaining meals were served either in family or buffet style, or by table service, counter service, vending machines, or other methods (such as individuals serving themselves in the kitchen or special feeding operations in penal institutions). The family-style or table-service methods were used most often in boarding houses and children's homes. Individual tray service was employed in hospitals. In addition, there were distinct variations by type of institution between regions.

The manner of serving meals, which affects the quantity of food used, is undoubtedly influenced by the number of people served at one time (table 3) and by the residents' special dietary requirements.

Food Costs

For 2.7 million meals and snacks served by 256 institutions reporting food cost data, the estimated cost of the raw food (exclusive of the cost of preparation), including dairy products, totaled $554,500 (table 4). The estimated cost of raw

Table 3.--Percentage and number of all meals served by reporting institutions, by method of serving, type of institution, and geographic area, during week prior to survey, 1965

Area and type of institution	Meals served in week prior to survey	Family style	Table service	Counter service	Cafeteria service	Vending machine	Individual tray service	Buffet style	Other
East:	Number	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Boarding houses	23,126	17.0	66.9	0.0	11.3	0.0	4.3	0.0	0.5
Nursing homes	49,830	26.9	34.3	0.0	4.5	1.4	32.9	1/	0.0
Hospitals	422,975	0.3	7.3	5.1	31.1	0.7	54.9	0.6	0.0
Senior or junior high schools (private)	71,982	11.9	1.0	4.9	82.2	0.0	0.0	0.0	0.0
Universities or colleges: (endowed)	351,730	7.3	0.1	3.9	88.7	0.0	0.0	0.0	0.0
Universities or colleges: (State)	614,461	3.7	3.6	0.0	91.1	0.1	1.5	0.0	0.0
Food service management companies 2/	97,875	0.0	1.0	0.0	98.4	0.6	0.0	0.0	0.0
Penal institutions	270,124	0.0	0.0	0.0	83.9	0.0	3.0	0.0	13.1
Children's homes and orphanages	33,204	37.3	44.1	0.0	13.9	0.0	3.7	0.2	0.8
All eastern institutions	1,935,307	4.5	5.3	2.0	72.1	0.2	13.9	0.1	1.9
Midwest:									
Boarding houses	12,005	72.4	3.1	0.0	24.5	0.0	0.0	0.0	0.0
Nursing homes	36,733	19.8	22.3	0.0	4.1	0.0	53.8	0.0	0.0
Hospitals	173,679	9.5	5.7	0.0	25.0	0.6	59.2	0.0	0.0
Senior or junior high schools (private)	29,155	78.9	0.0	0.0	21.1	0.0	0.0	0.0	0.0
Universities or colleges: (endowed)	121,006	6.4	0.0	0.0	86.5	0.0	0.0	6.1	1.0
Universities or colleges: (State)	393,859	0.0	0.0	0.0	90.0	0.0	0.0	0.0	10.0
Food service management companies 2/	16,500	0.0	0.0	0.0	9.1	0.0	0.0	0.0	90.9
Penal institutions	21,050	0.0	0.0	0.0	61.0	0.0	39.0	0.0	0.0
Children's homes and orphanages	11,714	94.1	5.9	0.0	0.0	0.0	0.0	0.0	0.0
All midwestern institutions	815,701	9.1	2.4	0.0	64.7	0.1	16.0	0.9	6.8
All institutions	2,751,008	5.9	4.4	1.4	69.9	0.2	14.5	0.4	3.3

1/ Less than 0.1 percent. 2/ Feeding operations conducted by food service management companies.

food averaged 19 cents per serving in the East and 23 cents in the Midwest, a difference of 4 cents per serving between regions. 4/ The difference between regions in raw food costs within specific institutional groups ranged between 1 and 19 cents per serving.

Raw food costs per serving for institutional groups in the East and Midwest combined ranged from an average of 15 cents per serving in State universities to 29 cents in boarding houses. The differences result primarily from the number of persons and meals served, the extent of food preparation, and any discounts applicable to the quantities of food purchased.

Table 5 shows the number of reporting institutions, by type and region, which employed a food management service company to operate their feeding facilities. In the East, 16 percent of the institutions included in the sample used this type of service, while in the Midwest only about 6 percent of the reporting institutions used food service management companies.

Some eastern hospitals and State universities used food service companies, while none of their midwestern counterparts did. Food costs per serving were lower in the eastern institutions. Although eastern nursing homes and endowed universities used food service companies to a greater extent than their midwestern counterparts, there was little regional difference in food costs per serving in these institutions. However, midwestern high schools in the sample used food service companies and eastern high schools did not, yet midwestern food costs per serving were more than double eastern costs. Thus, differences in food costs per serving between eastern and midwestern institutions did not generally appear to be related to the use of food management companies.

MILK CONSUMPTION PATTERNS

Types of Milk Used

As shown in table 6, which lists institutional use of fluid and dry dairy products during the week prior to interview, whole milk represented approximately three-quarters of the combined total quantity of the dairy products used by midwestern and eastern institutions. Chocolate and nonfat dry milk ranked next, accounting for approximately 9 and 7 percent, respectively. However, in terms of expenditures, nonfat dry milk ranked eighth in the list of 12 products.

Variations in types of milk used among institutional groups most likely result from the different population characteristics. For example, chocolate milk was not used in nursing homes or penal institutions but represented 19.5 percent of total dairy purchases in privately operated high schools (appendix table 17, p. 20).

Little variation in usage patterns was evident between regions. Low-fat milk was used in the Midwest in place of some whole and skim milk used in the East. Dry whole milk, used in the East, was not purchased by midwestern institutions.

4/ Raw food cost represents the cost of all food delivered to the using institution but does not include costs of food preparation or serving.

Table 4.--Estimated cost of meals served during the week prior to survey by type of institution and region, 1965

Type of institution	Institutions reporting	Meals served					Estimated total raw food cost	Estimated raw food cost per serving
		Total	Breakfasts	Lunches	Dinners	Snacks		
	Number	Number	Number	Number	Number	Number	Dollars	Dollars
Boarding houses:								
East	21	23,126	9,990	2,409	10,048	679	7,027.37	0.30
Midwest	17	12,005	3,610	3,215	4,047	1,133	3,003.39	0.25
Nursing homes or homes for the aged:								
East	28	49,365	13,363	14,094	13,338	8,570	12,026.55	0.24
Midwest	20	36,733	9,960	10,213	10,080	6,480	8,441.80	0.23
Hospitals:								
East	31	418,520	109,009	119,895	110,099	79,517	100,191.44	0.24
Midwest	20	173,679	47,552	51,874	49,968	24,285	63,862.22	0.37
Senior or junior high schools (private):								
East	16	68,032	3,800	58,438	3,734	2,060	11,232.00	0.17
Midwest	5	25,730	7,910	9,910	7,910	0	9,182.19	0.36
Universities (endowed):								
East	17	375,875	99,640	133,416	111,345	31,474	75,737.90	0.20
Midwest	6	121,006	29,482	41,572	33,452	16,500	25,218.40	0.21
Universities (State):								
East	7	607,561	139,686	239,313	208,173	20,389	81,422.54	0.13
Midwest	2	393,859	115,239	115,239	115,239	48,142	66,258.74	0.17
Food service management companies 1/:								
East	10	97,875	18,730	51,539	7,771	19,835	20,269.18	0.21
Midwest	2	16,500	7,500	8,500	0	500	6,392.30	0.38
Penal institutions:								
East	16	270,124	89,633	90,858	89,633	0	50,633.42	0.19
Midwest	3	21,050	5,685	5,427	5,588	4,350	4,615.33	0.22
Children's homes and orphanages:								
East	27	31,628	6,149	9,141	5,923	10,415	6,801.66	0.22
Midwest	8	11,714	2,794	2,808	2,878	3,234	2,282.33	0.19
All institutions:								
East	173	1,942,106	490,000	719,103	560,064	172,939	365,342.06	0.19
Midwest	83	812,276	229,732	248,758	229,162	104,624	189,220.70	0.23

1/ Feeding operations conducted by food service management companies.

Table 5.--Institutions whose feeding operations were conducted under contract by food service management companies, 1965

Type of institution	Number of institutions in sample	Number using food service management companies' services	Percentage of institution type
Boarding houses:			
East	22	0	0.0
Midwest	17	0	0.0
Nursing homes:			
East	29	1	3.4
Midwest	20	0	0.0
Hospitals:			
East	31	5	16.1
Midwest	21	0	0.0
Senior or junior high schools:			
East	19	0	0.0
Midwest	6	1	16.7
Universities (endowed):			
East	18	10	55.6
Midwest	6	2	33.3
Universities (State):			
East	8	3	37.5
Midwest	2	0	0.0
Industrial, in plants 1/:			
East	10	10	100.0
Midwest	2	2	100.0
Penal institutions:			
East	16	0	0.0
Midwest	3	0	0.0
Orphanages:			
East	30	0	0.0
Midwest	8	0	0.0
All institutions	268	34	12.7

1/ Feeding operations conducted by food service management companies included in survey.

Table 6.--Milk type as a percentage of total milk used during week prior to survey, by region and type of institution, 1965 1/

Type of Milk	Boarding houses	Nursing homes or homes for aged	Hospitals	Senior or junior high schools (private)	University (endowed)	University (State)	Food service management companies 2/	Penal institutions	Children's homes and orphanages	All institutions
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
East:										
Whole milk	77.2	69.4	70.8	52.4	72.8	84.1	63.7	68.5	79.3	74.2
2-percent milk	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	3/
Skim milk	4.3	3.7	4.2	2.9	8.4	3.4	5.1	0.0	1.5	4.6
Chocolate milk	1.9	0.0	5.9	36.8	12.0	8.5	15.8	0.0	5.4	8.6
Buttermilk	0.7	1.4	1.0	0.1	0.6	1.9	2.7	3/	0.1	1.1
Half & half	1.6	1.1	2.8	0.5	2.6	0.4	4.6	0.0	0.2	1.7
Light cream	0.3	0.2	0.6	0.0	3/	0.0	2.7	3/	3/	0.3
Whipping cream	0.5	0.0	0.1	3/	0.1	3/	0.2	0.0	3/	0.1
Sour cream	3/	0.5	0.1	0.2	0.1	3/	0.0	0.0	0.0	0.1
Condensed or evaporated milk	1.7	1.6	0.7	0.2	0.3	3/	0.1	5.5	0.2	0.9
Nonfat dry milk 4/	11.8	21.5	13.0	6.6	2.5	1.5	3.7	23.6	13.3	7.9
Dry whole milk 4/	0.0	0.6	0.7	0.3	0.6	0.0	1.4	2.4	0.0	0.6
Total 5/	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Midwest:										
Whole milk	34.5	54.0	72.9	86.2	81.3	73.1	84.6	95.7	76.2	72.3
2-percent milk	52.5	29.4	3.5	9.9	6.3	7.1	0.0	0.0	13.9	8.1
Skim milk	0.1	3.9	9.7	0.0	3.9	8.6	2.0	0.0	2.2	6.7
Chocolate milk	0.0	0.0	3.5	0.0	2.7	9.2	0.0	0.0	0.0	6.7
Buttermilk	0.1	3/	1.2	0.0	0.1	0.5	0.0	0.1	0.5	0.6
Half & half	0.4	2.2	3.3	0.2	2.2	0.6	0.0	0.2	0.9	1.7
Light cream	0.0	3/	0.3	3/	0.0	0.0	0.0	0.0	0.0	0.1
Whipping cream	0.1	0.2	0.3	0.0	0.1	0.9	0.0	0.0	0.1	0.4
Sour cream	0.2	0.2	0.2	0.0	0.2	3/	0.0	0.1	0.3	0.1
Condensed or evaporated milk	0.8	0.3	0.2	0.3	0.1	3/	0.0	1.1	3/	0.2
Nonfat dry milk 4/	11.3	9.8	4.9	3.4	3.1	0.0	13.4	2.8	5.9	3.1
Dry whole milk 4/	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total 5/	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Quarts of specified products.
2/ Feeding operations conducted by food service management companies.
3/ Less than 0.1 percent.
4/ Reconstituted basis.
5/ Percentages may not add to 100 because of individual rounding.

Per Capita Consumption of Various Milk Products

Differences among groups of institutions in the utilization of various milk products may also be seen in per capita consumption rates of milk products in the 268 institutions sampled (table 7). Children's homes had the highest and penal institutions the lowest per capita consumption of whole and 2-percent milk. This consumption pattern is expected because of the difference in population characteristics.

Generally, only slight differences in per capita dairy product usage were found between regions. Midwestern boarding houses reported a higher dairy product consumption rate than those located in the East, probably because most midwestern reporters for this category were fraternities. In all institutional outlets except boarding houses and penal institutions, consumption of regular whole, 2-percent, and chocolate milk on a combined per capita basis was larger than the 1965 U.S. average for civilian per capita consumption of fluid whole milk (266 pounds). This higher rate is expected, since people in nursing homes and hospitals are encouraged to drink milk. Also, high school and college boys generally consume more milk than older age groups. Institutional per capita consumption of evaporated and condensed milk and dry powdered milk was lower than civilian per capita usage of these products, except for consumption of evaporated milk in penal institutions and dry powdered milk in nursing homes.

Importance of Institutional Dairy Purchases

To determine the relative importance of institutional dairy purchases in the marketing of milk, the percentage of the total dairy product sales in the areas surveyed was estimated for: boarding houses, nursing homes, hospitals, high schools not under a Federal Milk Program, universities, penal institutions, and children's homes. Federal Milk Market Order in-area sales data for the selected metropolitan areas were used in making the estimates.

Institutions surveyed in the East accounted for the following approximate percentages of total dairy sales in the three metropolitan areas: 3 percent of the fluid milk (includes regular whole, 2-percent, and chocolate milk), 2 percent of the cream, 1.5 percent of the dry powdered milk (includes nonfat dry and dry whole milk), and 2 percent of the evaporated and condensed milk.

Midwestern institutions surveyed accounted for the following approximate percentages of total dairy sales in the two metropolitan areas: 9 percent of the fluid whole milk, 3.5 percent of the skim milk, 5 percent of all cream, 2 percent of the dry powdered milk, and 3.2 percent of the evaporated and condensed milk. Thus, a fairly significant proportion of total dairy product sales was made to institutional outlets.

Dairy Product Expenditures

Raw food costs for 251 institutions reporting complete cost information amounted to slightly more than $27.4 million in 1964. Thirteen percent of this total was spent on fluid dairy products. 5/ Annual expenditures for evaporated, dry whole, and nonfat dry milk each represented 0.2 percent or less of the total.

5/ Fluid milk includes the first nine types listed in table 6, page 9 .

Table 7.--Estimated institutional per capita consumption of various milk products, 1965 1/

Type of institution	Whole and 2% milk	Skim milk	Chocolate milk	Butter-milk	Half and half	Regular cream	Whipping cream	Sour cream	Condensed or evaporated milk	Dry powdered milk 2/
	Pounds									
Boarding houses	258.6	7.1	3.2	1.3	3.0	0.4	0.8	0.4	8.0	3.4
Nursing homes	399.5	19.6	0.0	3.4	8.8	0.4	0.2	1.7	9.0	7.4
Hospitals	378.8	32.8	25.8	5.8	15.4	2.3	0.8	0.8	5.6	5.0
Senior and junior high schools (private) 3/	334.3	12.7	16.1	0.2	0.2	0.2	0.1	0.1	0.4	0.4
Universities 3/(State and endowed)	368.3	22.8	33.5	3.7	4.9	0.2	1.1	0.2	0.8	0.6
Penal institutions	198.8	0.0	0.0	0.1	0.2	0.2	0.0	0.1	25.2	5.7
Children's homes	415.6	8.4	20.9	0.9	1.7	0.2	0.1	0.4	1.1	5.4

1/ Factors for converting quarts to pounds taken from: Volume-Weight Conversion Factors for Milk Market Research, Report No. 701, Dairy Division, Consumer and Mktg. Serv., Dept. of Agr., November 1964.
2/ Dry whole and nonfat dry milk.
3/ Per capita consumption of a normal school year of approximately 36 weeks.

Table 8.--Annual expenditures for specified milk products as a percentage of total annual raw food expenditures, by region, 1964

Type of institutions	East (169 institutions)					Midwest (82 institutions)				
	Total annual raw food cost	Fluid milk	Evaporated or condensed milk	Dry whole milk	Nonfat dry milk	Total annual raw food cost	Fluid milk	Evaporated or condensed milk	Dry whole milk	Nonfat dry milk
	Dollars	Pct.	Pct.	Pct.	Pct.	Dollars	Pct.	Pct.	Pct.	Pct.
Boarding houses	371,626	9.7	0.2	0.0	0.4	92,655	21.3	1/	0.0	0.4
Nursing homes or homes for aged	619,026	11.1	0.3	0.1	0.5	438,974	16.8	0.1	0.0	0.5
Hospitals	4,939,905	14.8	0.1	0.1	0.1	3,318,964	10.9	0.1	0.0	0.1
Senior and junior high schools (private)	454,459	14.0	0.3	1/	0.1	330,559	18.4	0.1	0.0	0.1
University (endowed)	3,549,248	12.7	0.1	1/	0.1	1,046,468	14.7	1/	0.0	0.1
University (State)	4,172,554	12.1	1/	0.0	0.1	3,445,455	16.9	1/	0.0	0.1
Food service management companies 2/	1,049,332	12.3	1/	0.1	0.1	332,400	1.5	0.0	0.0	0.1
Penal institutions	2,577,844	5.8	1.3	0.9	0.4	239,998	14.6	0.3	0.0	0.1
Children's homes and orphanages	339,352	18.6	0.7	0.0	0.1	118,682	22.3	1/	0.0	0.1
All institutions	18,073,826	12.2	0.3	0.2	0.2	9,364,155	14.1	0.0	0.0	0.1

1/ Less than 0.1 percent.
2/ Feeding operations conducted by food service management companies.

With the exception of boarding houses in the East and food management serving operations in the Midwest, annual purchases of fluid milk products averaged between 10 and 15 percent of the total raw food costs in eastern institutions and between 11 and 22 percent of the total food costs in the midwestern institutions. The lower percentages in the ranges reported most likely reflected the lower quantities of milk used for beverages by adults as well as substitution of lower-cost beverages.

When amounts spent for fluid dairy products by the selected institutional groups were viewed as a percentage of total annual raw food costs, significant regional differences were found. A larger percentage of total raw food costs was used for fluid milk purchases by seven midwestern institutional groups than by the same groups in the East. This disparity may be partially explained by differences in population characteristics within an institutional group. For example, in the Midwest--unlike the East--the majority of boarding houses were fraternities. One large penal institution sampled in the Midwest was a children's correctional establishment, which naturally would be expected to have a higher rate of milk consumption than other types of correctional institutions. More evaporated milk was used in eastern institutions, while little variation between regions existed in the reported use of powdered milk.

Uses of Dairy Products

Table 9 presents the percentage of dairy products used by midwestern and eastern institutions combined for beverages, ingredients, and other uses. In terms of the total fluid quantity of all products used, whole milk was the most important, while chocolate, skim, and nonfat dry milk (reconstituted) ranked next, in that order.

Table 9.--Percentage of total quantity and total cost of milk products used for selected purposes by 254 institutions, 1965 1/

Type of milk	Total quantity 2/	Percentage of total used for--		
		Beverage	Ingredient	Other 3/
	Quarts	Percent	Percent	Percent
Whole milk	283,738	79.5	11.4	9.1
2-percent milk	11,946	92.8	4.1	3.1
Skim milk	21,229	91.3	5.5	3.2
Chocolate milk	28,477	99.5	0.0	0.5
Buttermilk	4,249	97.2	2.8	0.0
Half & half	6,775	7.2	4.7	88.1
Light cream	1,097	3.6	5.8	90.6
Whipping cream	804	0.0	99.9	0.1
Sour cream	377	0.0	100.0	0.0
Condensed or evaporated milk	2,491	1.9	58.5	39.5
Nonfat dry milk	16,725	6.7	87.7	5.6
Dry whole milk	2,730	3.4	79.1	17.6
All types	380,648	76.3	14.2	9.5

1/ Percentages may not add to 100 because of individual rounding.
2/ See appendix tables 20 through 27 for interregional cost differences for various milk products used weekly in institutions for specified purposes.
3/ Includes use on cereal, in coffee, on desserts, etc.

From 80 to 100 percent of the whole, 2-percent, skim, chocolate, and buttermilk served was used for beverage purposes. The majority of the higher-fat dairy products, such as half-and-half and creams, was used as ingredients or for other nonfluid purposes. 6/ Also, four-fifths of the dry whole milk and seven-eighths of the nonfat dry milk were used as ingredients, while only 3 and 7 percent of these products, respectively, were used as beverages.

Package Sizes

Detailed information was obtained about the package sizes of the fluid milk currently being used (tables 10 and 11), since this factor may influence an institution's acceptance of milk products.

For fluid milk products, use of a specific package size depended primarily upon method of serving milk. Hospitals, for example, served the majority of their beverage milk in half-pints because patients were fed by individual tray service. In cafeterias, milk dispensers were often used and, therefore, the larger 5- and 10-gallon containers were more suitable. Even in institutions serving beverage milk in half-pint containers, fluid milk used as an ingredient in other foods was usually purchased in gallon, 5-gallon, and 10-gallon containers.

Fluid products having a higher butterfat content, such as regular cream, whipping cream, half-and-half, and sour cream, were most often purchased by institutions in half-pints, pints, and quarts. Package sizes for condensed and dry milk are summarized in table 12.

Cost of Handling Fluid Milk

Costs to institutions of handling fluid milk products depended upon method of serving and size of institution. Self-service methods usually required the least amount of labor time.

Daily labor costs for handling fluid milk products ranged from 75 cents for institutions serving 99 or fewer persons per meal to $3.86 for instutitions serving 900 or more persons per meal (table 13). A slight decrease occurred in labor cost between the institutions serving 100 to 499 and the next higher category (500 to 899). This may be due to the fact that many schools in the 500 to 899 class were built recently or remodeled with the latest food-serving equipment and used student help in serving meals.

The figures presented in table 13 represent only those costs directly chargeable to an institution's food-service operation. For example, excluded was the time used by delivery men or unpaid personnel in placing fluid products into coolers.

6/ Several institutions reported using a nondairy substitute for whipping cream and other creams, especially half-and-half. Two main reasons were given for using these substitutes: First, nondairy substitutes have a longer shelf life than regular dairy cream, and second, nondairy substitutes are considerably cheaper.

Table 10.--Milk container size as a percentage of total fluid milk used during week prior to survey, 1965 1/

Type of milk	Size of package										Total quantity
	1/2 pints	Pints	1/3 quarts	Quarts	1/2 gallons	Gallons	10 quarts	5 gallons	6 gallons	10 gallons	
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Quarts 2/
Whole milk...	20.0	2.6	0.0	6.5	6.6	3.5	0.3	24.8	23.4	12.3	313,970
2-percent milk.....	6.4	0.0	0.0	1.2	26.5	6.2	0.0	11.4	39.0	9.3	12,066
Skim milk....	35.2	6.0	0.0	9.6	5.0	15.7	0.0	11.8	14.6	2.1	22,637
Chocolate milk.....	31.7	4.6	0.8	3.3	0.0	0.0	0.0	25.2	31.2	3.2	30,971
Buttermilk...	44.3	0.4	1.7	17.3	0.0	0.0	0.0	36.3	0.0	0.0	3,861
Five-product total.....	21.6	2.9	0.1	6.4	6.5	4.0	0.2	23.8	23.8	10.7	383,505

1/ See appendix tables 29-37 for regional differences in container sizes used in serving fluid milk, by type of institution.
2/ Fluid equivalent.

Table 11.--Percentage of fluid milk 1/ purchased in most commonly used package sizes during week prior to survey, by type of institution, 1965

Type of institution	Size of package								Total 2/
	1/2 pints	Pints	Quarts	1/2 gallons	Gallons	5 gallons	6 gallons	10 gallons	
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Boarding houses.....	---	---	---	20	---	17	32	---	69
Nursing homes.....	20	17	---	39	---	---	---	---	76
Hospitals.....	51	---	---	---	---	12	11	---	74
Penal institutions.....	---	---	28	---	29	---	---	40	97
Children's homes.....	28	---	25	35	---	---	---	---	88
Senior or junior high schools (private)....	50	---	---	26	---	---	---	---	76
Food service management companies 3/.....	41	29	---	---	---	---	---	---	70
Universities or colleges (State).....	---	---	---	---	---	49	37	---	86
Universities or colleges (endowed)...	15	---	---	---	---	17	34	19	85

1/ Fluid milk here includes whole, 2-percent, skim, chocolate, and buttermilk.
2/ Only the 2, 3, or 4 most frequently used package sizes are listed for each institution. In each case, the package sizes supplied between 69 and 97 percent of the fluid milk used.
3/ Feeding operations conducted by food service management companies.

Table 12.--Container sizes for condensed and dry milk purchased by reporting institutions during week prior to survey, by type of milk, 1965

Size of container	Type of milk		
	Evaporated and condensed milk	Nonfat dry milk	Dry whole milk
	Percent	Percent	Percent
14½ ounce	45	---	---
96 ounce	45	---	---
Gallon	10	---	---
1 pound	---	---	8
4½ pound	---	21	---
5 pound	---	25	69
50 pound	---	22	---
100 pound	---	---	23
250 pound	---	18	---
Total	100	86 1/	100

1/ 11 different package sizes accounted for the remaining percentage of nonfat dry milk used by all institutions.

Table 13.--Average daily cost of handling fluid milk products, by average number of persons served per meal, 1965

Size of institution	Average daily labor cost	Institutions reporting	Total institutions
	Dollars	Number	Percent
Number Served			
99 and under:	0.75	82	47.5
East	0.89	51	---
Midwest	0.51	31	---
100-499:	1.97	53	30.6
East	1.97	41	---
Midwest	1.91	12	---
500-899:	1.60	12	6.9
East	1.72	11	---
Midwest	.31	1	---
900 and over:	3.86	26	15.0
East	4.10	23	---
Midwest	2.02	3	---
All institutions	1.65	173	100.0

Source of Supply

Two-thirds of all fluid milk products used by the participating institutions was purchased from local dairy distributiors, while slightly more than one-fifth (22 percent) was supplied by dairy operations owned by the institutions (table 14). Other sources included milk distributors located outside the local area and State-operated dairy facilities. A very small percentage of fluid milk was obtained through Government programs.

The majority of evaporated and dry milk was also obtained from local distributors. Most of the remainder was purchased either directly from the manufacturer or from wholesalers outside of the immediate market area. Over 32 percent of the nonfat dry milk used by the institutions sampled was obtained through Government programs, which effectively reduced the product's cost to the institutions.

The institutions' predominant reliance on local distributors for dairy product supplies reflects their desire to have an assured supply when needed.

Purchasing Patterns

The institutions most often purchased dairy products in standard quantity lots, i.e., a specific quantity was delivered or purchased at regular intervals (table 15). Contract purchasing was the next most frequent method of obtaining fluid milk. The contracts were generally for a 1-year period and obligated the purchaser to accept delivery of a stated quantity of product at specific times. For purchases of evaporated and nonfat dry milk, local retail outlets and donated products received either through private or Government programs were frequently used.

The majority of fluid products was obtained daily or every other day, but most institutions reporting use of evaporated milk purchased it either once a month or as needed (table 16). Nonfat dry milk was generally purchased either monthly or quarterly.

All institutions in the second highest size category (500 to 899 persons served each meal) purchased fresh fluid milk daily, whereas the other three size groups showed more variation in purchasing patterns. One explanation for this one group's frequency pattern may be that the group consisted mainly of high schools which generally served only one meal each day, and so shortened purchasing intervals to conserve storage space, and of institutions such as hospitals, which require daily delivery of fluid milk.

Dry Milk Use Patterns

Since dry milk may be used either in its powdered state or in reconstituted form, information was obtained about which forms were generally used as an ingredient during food preparation (table 17). Over 80 percent of the institutions using dry whole milk or nonfat dry milk reconstituted some of the product before use, and over 50 percent reconstituted all of the product before use.

Dry milk was used by almost two-thirds of the institutions within an hour after reconstitution, since over 80 percent of dry-milk products were used as ingredients in cooking and baking. About 8 percent of the institutions reported using reconstituted products over 12 hours after preparation.

Table 14.--Supply sources for specified dairy products used week prior to survey, by type of institution and region, 1965

Type of institution	Fluid milk				Evaporated or condensed milk			Dry whole milk			Nonfat dry milk		
	Total quantity used	Local distributor	Own dairy herd	Other	Total quantity used	Local distributor	Other	Total quantity used	Local distributor	Other	Total quantity used	Local distributor	Other
	Quarts	Pct.	Pct.	Pct.	Quarts	Pct.	Pct.	Quarts	Pct.	Pct.	Quarts	Pct.	Pct.
Boarding houses:													
East	2,849	100.0	0.0	0.0	54	100.0	0.0	0	0.0	0.0	372	87.1	12.9
Midwest	2,660	100.0	0.0	0.0	23	100.0	0.0	0	0.0	0.0	343	98.9	1.1
Nursing homes and homes for aged:													
East	5,981	100.0	0.0	0.0	123	100.0	0.0	48	100.0	0.0	1,680	82.9	17.1
Midwest	8,626	100.0	0.0	0.0	30	24.2	75.8	0	0.0	0.0	943	93.1	6.9
Hospitals:													
East	56,642	86.4	13.6	0.0	482	86.5	13.5	490	100.0	0.0	8,575	25.8	74.2
Midwest	39,291	80.7	19.3	0.0	98	58.3	41.7	0	0.0	0.0	2,016	37.7	62.3
Senior and junior high schools (private):													
East	6,925	100.0	0.0	0.0	16	100.0	0.0	24	100.0	0.0	490	68.4	31.6
Midwest	6,366	100.0	0.0	0.0	20	100.0	0.0	0	0.0	0.0	225	100.0	0.0
Universities (endowed):													
East	70,195	100.0	0.0	0.0	190	100.0	0.0	426	100.0	0.0	1,840	100.0	0.0
Midwest	21,186	100.0	0.0	0.0	29	100.0	0.0	0	0.0	0.0	670	100.0	0.0
Universities (State):													
East	75,896	31.2	6.8	62.0	24	100.0	0.0	0	0.0	0.0	1,150	100.0	0.0
Midwest	52,428	6.1	93.9	0.0	2	100.0	0.0	0	0.0	0.0	0	100.0	0.0
Food service management companies 1/:													
East	10,839	100.0	0.0	0.0	8	100.0	0.0	160	100.0	0.0	425	100.0	0.0
Midwest	647	100.0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	100	100.0	0.0
Penal institutions:													
East	19,262	14.6	85.4	0.0	1,533	57.5	42.5	676	100.0	0.0	6,619	89.9	10.1
Midwest	5,053	100.0	0.0	0.0	57	100.0	0.0	0	0.0	0.0	150	100.0	0.0
Children's homes & orphanages:													
East	5,936	95.1	0.0	4.9	10	100.0	0.0	0	0.0	0.0	905	10.9	89.1
Midwest	2,104	100.0	0.0	0.0	0	100.0	0.0	0	0.0	0.0	133	33.8	66.2
All institutions	392,886	66.1	21.9	12.0	2,699	71.1	28.9	1,824	100.0	0.0	26,636	64.4	35.6

1/ Feeding operations conducted by food service management companies.

Table 15.--Method of purchasing selected dairy products from local distributors, by region and number of reporting institutions, 1965

Type of institution	Fluid milk			Evaporated or condensed milk			Dry whole milk			Nonfat dry milk		
	Contract	Standard quantity lots	Other 1/	Contract	Standard quantity lots	Other 1/	Contract	Standard quantity lots	Other 1/	Contract	Standard quantity lots	Other 1/
Boarding houses:												
East	1	14	5	0	2	6	0	0	0	0	3	5
Midwest	7	8	0	1	1	2	0	0	0	0	4	0
Nursing homes or homes for the aged:												
East	2	25	2	1	6	5	0	2	0	2	7	7
Midwest	3	17	0	0	3	0	0	0	0	0	8	1
Hospitals:												
East	1	17	1	0	1	1	0	2	1	0	9	4
Midwest	12	5	0	1	3	4	0	0	0	1	3	4
Senior and junior high schools (private):												
East	1	17	1	0	1	1	0	0	1	0	0	2
Midwest	1	5	0	0	1	1	0	0	0	0	2	0
Universities (endowed):												
East	5	10	3	1	2	3	0	2	0	1	3	3
Midwest	3	3	0	1	2	3	0	0	0	1	4	1
Universities (State):												
East	1	4	2	0	2	1	0	1	0	1	2	0
Midwest	2	0	0	0	0	1	0	0	0	1	0	0
Food service management companies 2/:												
East	4	4	2	0	1	1	1	0	1	1	1	2
Midwest	0	2	0	0	0	0	0	0	0	0	2	0
Penal institutions:												
East	6	1	1	4	3	3	1	0	1	3	4	1
Midwest	3	0	0	2	0	0	0	0	0	1	0	0
Children's homes and orphanages:												
East	0	21	9	0	0	11	0	0	0	0	3	10
Midwest	0	8	0	0	0	1	0	0	0	0	1	0
Total	52	161	26	11	28	44	2	7	4	12	56	40

1/ Local retail outlets or donated products received either through private or Government programs. 2/ Feeding operations conducted by food service management companies.

Table 16.--Frequency of purchase of dairy items as a percentage of total reporting institutions, 1965

Product and frequency of delivery or purchase	Number of persons regularly served per meal			
	99 and under	100-499	500-899	900 and over
	Percent	Percent	Percent	Percent
Fresh fluid milk:				
Daily	58.9	87.0	100.0	79.9
5 times per week	2.3	3.5	0.0	2.9
4 times per week	1.6	2.4	0.0	0.0
Every other day	23.2	3.5	0.0	5.7
3 times per week	3.9	2.4	0.0	2.9
2 times per week	2.3	0.0	0.0	5.7
1 time per week	1.6	0.0	0.0	0.0
None delivered	6.2	1.2	0.0	2.9
Total	100.0	100.0	100.0	100.0
Evaporated or condensed milk:				
Daily	0.0	0.0	0.0	0.0
2 times per week	0.8	0.0	0.0	0.0
1 time per week	3.9	3.5	5.9	5.7
Bi-weekly	3.9	3.5	0.0	5.7
1 time per month	9.3	11.8	11.8	17.1
6 times per year	0.8	4.7	17.6	0.0
4 times per year	3.9	4.7	0.0	8.6
2 times per year	0.8	1.2	0.0	5.7
As needed	13.1	18.8	11.8	11.4
None used	63.5	51.8	52.9	45.8
Total	100.0	100.0	100.0	100.0
Nonfat dry milk:				
Daily	0.0	0.0	0.0	0.0
2 times per week	0.8	0.0	0.0	0.0
1 time per week	4.7	3.5	5.9	8.6
Bi-weekly	4.7	7.1	17.6	5.7
1 time per month	11.6	15.3	5.9	11.4
6 times per year	6.2	3.5	5.9	2.9
4 times per year	15.6	10.6	5.9	25.7
2 times per year	3.9	3.5	0.0	5.7
As needed	7.0	15.3	5.9	5.7
None used	45.3	41.2	52.9	34.3
Total 1/	100.0	100.0	100.0	100.0
Dry whole milk:				
Daily	0.8	0.0	0.0	0.0
2 times per week	0.0	0.0	0.0	0.0
1 time per week	0.0	1.2	5.9	2.9
Bi-weekly	0.0	2.4	5.9	2.9
1 time per month	0.8	3.5	0.0	5.7
6 times per year	0.0	0.0	0.0	0.0
4 times per year	0.8	0.0	0.0	2.9
2 times per year	0.0	0.0	0.0	0.0
As needed	0.0	1.2	5.9	2.9
None used	97.6	91.7	82.3	82.9
Total 1/	100.0	100.0	100.0	100.0
Total number institutions in category	129	85	17	35

1/ Percentages may not add to 100 because of individual rounding.

Table 17.--Form in which dry whole milk and nonfat dry milk were used as ingredients during food preparation, 1965 1/

Type of institution	Dry whole milk					Nonfat dry milk			
	Total in sample	Total reporting use of dry whole milk	Used in dry form only	Used in reconstituted form only	Used in both dry and reconstituted form	Total reporting use of nonfat dry milk	Used in dry form only	Used in reconstituted form only	Used in both dry and reconstituted form
	Number	Number	Percent	Percent	Percent	Number	Percent	Percent	Percent
Boarding houses	39	0	0.0	0.0	0.0	16	6.2	87.5	6.2
Nursing homes or homes for aged	50	1	0.0	100.0	0.0	36	8.3	83.4	8.3
Hospitals	51	4	0.0	75.0	25.0	39	10.3	58.9	30.8
Senior or junior high schools (private)	25	1	0.0	0.0	100.0	6			
Universities (endowed)	24	3	33.3	66.7	0.0	16	43.8	43.8	12.5
Universities (State)	10	0	0.0	0.0	0.0	6	16.7	50.0	33.3
Food service management companies 2/	12	3	0.0	33.3	66.7	5	20.0	40.0	40.0
Penal institutions	19	3	33.3	33.3	33.3	12	16.7	66.7	16.7
Children's homes and orphanages	38	0	0.0	0.0	0.0	28	17.9	46.4	35.7
All institutions	268	15	13.3	53.4	33.3	164	15.9	62.8	21.3

1/ Total percentages may not equal 100 due to individual rounding.
2/ Feeding operations conducted by food service management companies.

Institutions differed in their facilities for reconstituting dry whole and nonfat dry milk. Some smaller establishments used 1-quart containers, while larger institutions sometimes employed a 160-quart size. The varied equipment included ordinary glass containers, aluminum kettles or pots, stainless steel kettles or pots, plastic containers, scales and mixing bowls, and electric mixers.

Milk Prices Compared to Quantities Used

Table 18 shows (1) the average prices paid for each of four milk products, (2) the prices for three products related to prices for the fourth--whole milk, and (3) each product's percentage of the total quantity of products.

Nonfat dry milk powder represented only about 4 percent (see table 9, p. 12) of the total volume of dairy products used by the institutions surveyed. Since the nonfat milk powder cost an average of 18 cents per quart less than whole fluid milk and dry whole milk at eastern institutions and 12 cents per quart less at midwestern institutions, one might expect a larger volume of powdered milk to be used for beverage as well as for cooking purposes. However, local regulations regarding the handling and serving of fluid dairy products may override the economic factors in decisions about which product to use. Also, the fact that milk powder requires reconstitution for beverages may inhibit its use.

Regulations on Milk Products Used in Institutions

Federal, State, and local regulations on the handling and serving of fluid dairy products may influence decisions on the type of milk used in institutions. The most common regulation provides that all milk served as a beverage or used in food preparation must meet Grade A milk standards of the State Department of Agriculture and the State Board of Health. Another regulation affecting some institutions requires that all fluid milk be used within 24 hours after delivery. A third such regulation, applying especially to hospitals, schools, and nursing homes, is generally stated as follows: "It shall be unlawful to serve any milk or fluid product except in the individual, original container received from the distributor, or from an approved bulk dispenser. If a bulk dispenser is used, it must meet the following requirements: (a) product-contact surfaces shall be inaccessible to manual contact, (b) all parts of the dispenser device with which milk or milk products come into contact, including any measuring device, shall be thoroughly cleaned and sanitized at the milk plant, and (c) the dispensing container shall be filled at the milk plant." Other regulations generally are minor.

STERILIZED MILK CONCENTRATE

A new product developed by dairy scientists at the University of Wisconsin is likely to affect patterns of institutional milk use. Sterilized milk concentrate is made from high-quality fresh, whole, unpasteurized milk which has been concentrated by the removal of approximately 75 percent of the water, thus reducing the volume by about two-thirds. In concentrated form, the milk contains 34.2 percent milk solids, 9.9 percent milk fat, and 400 U.S.P. units of vitamin D, with sodium hexametophosphate and sodium carbonate added as stabilizers.

The concentrate is a multiple-use product. If it is combined with a volume of water two times the quantity of concentrate, the resulting product is equivalent to fresh fluid milk containing about 3.5 percent milk fat. When equal quantities of the

Table 18.--Comparison of average prices paid for specified types of milk and quantities used during week prior to survey, 1965

Type of institution	Average price paid per quart				Price per quart compared to whole milk			Percentage of 4-quantity total 1/				Total quarts of 4 products used
	Whole milk	2 percent milk	Skim milk	Nonfat dry milk reconstituted	2-percent milk	Skim milk	Nonfat dry milk	Whole milk	2-percent milk	Skim milk	Nonfat dry milk	
	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Pct.	Pct.	Pct.	Pct.	Number
Boarding houses:												
East	26.0	0.0	21.8	6.4	0.0	-4.2	-19.6	87.8	0.0	0.6	11.7	2,776.2
Midwest	17.6	18.9	18.7	2.3	+ 1.3	+1.1	-15.3	33.7	51.2	0.1	14.9	3,099.0
Nursing homes or homes for aged:												
East	23.7	0.0	19.9	4.4	0.0	-3.8	-19.3	75.6	0.0	4.0	20.3	7,102.0
Midwest	18.5	15.3	14.4	4.8	-13.7	-4.1	-13.7	55.9	30.5	4.0	9.6	9,275.0
Hospital:												
East	22.7	0.0	23.6	5.4	0.0	+ .9	-17.3	91.7	0.0	5.0	3.3	49,377.8
Midwest	14.0	11.7	11.7	3.4	- 2.3	-2.3	-10.6	82.0	3.9	11.0	3.1	36,810.7
Senior or junior high schools (private):												
East	24.2	0.0	21.7	0.0	0.0	-2.5	0.0	92.6	0.0	7.4	0.0	2,801.9
Midwest	15.4	24.0	0.0	5.8	+ 8.6	0.0	- 9.6	86.7	9.9	0.0	3.4	6,589.0
Universities (endowed):												
East	22.2	0.0	19.1	5.4	0.0	-3.1	-16.8	87.8	0.0	9.3	2.9	56,094.7
Midwest	19.6	20.2	18.0	5.4	+ .6	-1.6	-14.2	57.9	21.1	13.1	7.9	6,547.5
Universities (State):												
East	20.1	0.0	19.6	5.2	0.0	- .5	-14.9	94.3	0.0	4.0	1.7	65,982.5
Midwest	15.6	12.2	11.9	0.0	- 3.4	-3.7	0.0	82.3	8.0	9.6	0.0	46,517.0
Food service management companies 2/:												
East	28.3	0.0	26.4	4.6	0.0	-1.9	-23.7	86.3	0.0	7.5	6.2	6,831.1
Midwest	14.8	0.0	12.0	4.2	0.0	-2.8	-10.6	84.6	0.0	2.0	13.4	747.0
Penal institutions:												
East	17.6	0.0	0.0	4.0	0.0	0.0	-13.6	67.6	0.0	0.0	32.4	20,453.0
Midwest	13.2	0.0	0.0	3.6	0.0	0.0	- 9.6	97.1	0.0	0.0	2.9	5,186.0
Children's homes and orphanages:												
East	24.2	0.0	24.0	5.4	0.0	- .2	-18.8	98.0	0.0	1.9	0.1	5,314.9
Midwest	19.3	17.5	16.7	7.9	-1.8	-2.6	-11.4	81.2	14.6	2.3	1.9	2,134.0

1/ Percentages may not add to 100 because of individual rounding.
2/ Feeding operations conducted by food service management companies.

concentrate and water are combined, the product may be used as half-and-half. In concentrated form, it may be used as cream.

As shown in this study, package size is a factor influencing institutional acceptance of a dairy product. Sterilized concentrated milk is flexible in both volume and composition of the reconstituted product, and its flexibility could be an important advantage in institutional outlets.

The use of sterilized milk concentrate in place of fluid milk would require a reconstituting operation. This additional operation would, no doubt, increase labor time and costs in handling and serving of milk, although costs would not necessarily rise where dry whole and nonfat dry milk are currently used, since these products also require reconstitution for beverage purposes.

The majority of fluid milk products and evaporated and dry milk used by the surveyed institutions was purchased from local dairy distributors. This pattern indicates that local distributors would undoubtedly be needed to service institutional outlets using the sterilized milk concentrate. Also, if institutions have access to Government-program nonfat dry milk, the result could be price competition problems for the milk concentrate.

The fact that such a large proportion of dry-milk products used by institutions was reconstituted is important for the potential of sterilized concentrated milk in institutional outlets; the need to reconstitute the concentrate should not be a deterrent to its use, particularly as ingredients in cooking and baking.

The Agricultural Economics Department, College of Agriculture, University of Wisconsin, in cooperation with the Economic Research Service, U.S. Department of Agriculture, is preparing a report of the results of a product placement test for the sterilized milk concentrate in a sample of the institutions surveyed in this report.

APPENDIX

Table 19.--Milk of specified type as percentage of total fluid and dry milk products used week prior to survey, by type of institution, 1965

(Fluid equivalent quarts of specified product)

Type of milk	Boarding house	Nursing home or home for aged	Hospital	Senior or junior high schools (private)	University (endowed)	University (State)	Food service management companies 1/	Penal institutions	Children's homes and orphanages	Average of all institutions
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Whole milk	56.3	60.9	71.6	68.3	74.7	79.6	65.0	72.8	78.7	74.1
2-percent milk	25.7	16.2	1.3	4.6	1.5	3.1	0.0	0.0	3.4	2.9
Skim milk	2.3	3.8	6.3	1.5	7.4	5.5	4.9	0.0	1.7	5.3
Chocolate milk	1.0	0.0	5.0	19.5	9.8	8.7	14.8	0.0	4.1	7.3
Buttermilk	0.4	0.7	1.1	2/	0.5	1.3	2.5	2/	0.2	0.9
Half & half	0.9	1.7	3.0	0.4	2.5	0.5	4.3	2/	0.3	1.7
Light cream	0.2	0.1	0.5	2/	2/	0.0	2.6	0.1	2/	0.2
Whipping cream	0.3	0.1	0.2	2/	0.1	0.4	0.2	0.0	2/	0.2
Sour cream	0.1	0.3	0.2	0.1	0.1	2/	0.0	2/	0.1	0.1
Condensed or evaporated milk	1.2	0.9	0.5	0.3	0.2	2/	0.1	4.8	0.1	0.6
Nonfat dry milk	11.6	15.0	9.8	5.1	2.7	0.9	4.3	20.3	11.4	6.3
Dry whole milk	0.0	0.3	0.5	0.2	0.5	0.0	1.3	2.0	0.0	0.4
Total 3/	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Feeding operations conducted by food service management companies.
2/ Less than 0.1 percent.
3/ Percentages may not add to 100 because of individual rounding.

Table 20.--Average weekly cost of milk products used by boarding houses, by type of use, 1964

Type of milk	East (22 institutions)				Midwest (17 institutions)			
	Total weekly cost	Average weekly cost for use as			Total weekly cost	Average weekly cost for use as		
		Beverage	Ingredient	Other		Beverage	Ingredient	Other
	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.
Whole milk	634.67	19.69	3.16	5.99	184.62	9.75	0.56	0.54
2-percent milk	0.00	0.00	0.00	0.00	300.88	16.02	0.84	0.83
Skim milk	3.49	0.16	0.00	0.00	0.75	0.04	1/	0.00
Chocolate milk	20.33	0.92	0.00	0.00	0.00	0.00	0.00	0.00
Buttermilk	7.08	0.29	0.03	0.00	1.44	0.08	0.01	0.00
Half & half	27.01	0.00	0.00	1.23	6.97	0.00	0.12	0.29
Light cream	108.00	0.00	0.01	4.92	0.00	0.00	0.00	0.00
Whipping cream	21.28	0.00	0.97	0.00	2.74	0.00	0.16	0.00
Sour cream	.28	0.00	0.01	0.00	5.42	0.00	0.32	0.00
Condensed or evaporated milk	16.49	0.01	0.25	0.48	6.49	0.00	0.24	0.14
Nonfat dry milk	21.00	0.48	0.44	0.03	10.66	0.08	0.47	0.08
Dry whole milk	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1/ Less than 0.01 cent.

Table 21.--Average weekly cost of milk products used by nursing homes, by type of use, 1964

Type of milk	East (28 institutions)				Midwest (20 institutions)			
	Total weekly cost	Average weekly cost for use as			Total weekly cost	Average weekly cost for use as		
		Beverage	Ingredient	Other		Beverage	Ingredient	Other
	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.
Whole milk	1,274.73	32.60	4.39	8.54	963.06	37.05	7.66	3.45
2-percent milk	0.00	0.00	0.00	0.00	432.62	18.09	1.63	1.91
Skim milk	57.78	2.06	0.00	0.00	53.68	2.37	0.30	0.01
Chocolate milk	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Buttermilk	27.84	0.94	0.06	0.00	.70	0.04	0.00	0.00
Half & half	66.22	0.00	0.03	2.33	91.93	0.00	0.00	4.60
Light cream	15.92	0.00	0.00	0.57	1.28	0.00	0.06	0.00
Whipping cream	0.00	0.00	0.00	0.00	18.31	0.00	0.92	0.00
Sour cream	22.40	0.00	0.80	0.00	15.97	0.00	0.80	0.00
Condensed or evaporated milk	37.95	0.18	0.62	0.56	8.86	0.00	0.44	0.00
Nonfat dry milk	63.91	0.47	1.58	0.23	43.54	1.02	1.16	0.00
Dry whole milk	6.57	0.08	0.16	0.00	0.00	0.00	0.00	0.00

Table 22.--Average weekly cost of milk products used by hospitals, by type of use, 1964

Type of milk	East (30 institutions)				Midwest (20 institutions)			
	Total weekly cost	Average weekly cost for use as			Total weekly cost	Average weekly cost for use as		
		Beverage	Ingredient	Other		Beverage	Ingredient	Other
	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.
Whole milk	10,309.19	276.37	38.89	28.38	4,369.85	185.13	20.15	13.21
2-percent milk	0.00	0.00	0.00	0.00	169.04	7.17	1.13	0.16
Skim milk	578.73	17.97	0.82	0.50	473.08	22.91	0.62	0.13
Chocolate milk	633.87	21.13	0.00	0.00	229.73	11.49	0.00	0.00
Buttermilk	160.36	5.22	0.13	0.00	142.56	6.63	0.50	0.00
Half & half	887.91	7.75	1.15	20.70	720.56	1.22	0.70	34.11
Light cream	351.12	.77	1.11	9.82	66.49	0.00	0.36	2.96
Whipping cream	118.31	0.00	3.92	0.03	90.27	0.00	4.51	0.00
Sour cream	45.90	0.00	1.53	0.00	45.92	0.00	2.30	0.00
Condensed or evaporated milk	82.54	0.00	2.65	0.10	26.65	0.00	1.33	0.00
Nonfat dry milk	89.88	0.00	2.98	0.01	39.31	0.12	1.83	0.02
Dry whole milk	60.28	0.00	2.01	0.00	0.00	0.00	0.00	0.00

Table 23.--Average weekly cost of milk products used by senior and junior high schools (private), by type of use, 1964

Type of milk	East (16 institutions)				Midwest (6 institutions)			
	Total weekly cost	Average weekly cost for use as			Total weekly cost	Average weekly cost for use as		
		Beverage	Ingredient	Other		Beverage	Ingredient	Other
	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.
Whole milk	628.42	37.70	1.04	0.54	883.83	127.67	10.68	8.95
2-percent	0.00	0.00	0.00	0.00	156.60	26.20	0.00	0.00
Skim milk	44.77	2.69	0.00	0.11	0.00	0.00	0.00	0.00
Chocolate milk	582.68	36.42	0.00	0.00	0.00	0.00	0.00	0.00
Buttermilk	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Half & half	26.17	0.00	0.00	1.64	5.64	0.00	0.00	0.94
Light cream	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Whipping cream	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sour cream	7.20	0.00	0.45	0.00	0.00	0.00	0.00	0.00
Condensed or evaporated milk	5.65	0.00	0.35	0.00	7.38	0.00	1.23	0.00
Nonfat dry milk	0.00	0.00	0.00	0.00	13.05	0.00	2.18	0.00
Dry whole milk	4.96	0.00	0.31	0.00	0.00	0.00	0.00	0.00

Table 24.--Average weekly cost of milk products used by universities or colleges (endowed), by type of use, 1964

Type of milk	East (17 institutions)				Midwest (6 institutions)			
	Total weekly cost	Average weekly cost for use as			Total weekly cost	Average weekly cost for use as		
		Beverage	Ingredient	Other		Beverage	Ingredient	Other
	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.
Whole milk	10,945.43	592.59	31.67	19.58	743.88	88.42	30.17	5.37
2-percent milk	0.00	0.00	0.00	0.00	278.72	46.45	0.00	0.00
Skim milk	1,000.20	50.55	4.64	3.64	154.80	25.80	0.00	0.00
Chocolate milk	2,042.25	117.99	0.00	2.14	106.98	17.83	0.00	0.00
Buttermilk	109.60	6.27	8.98	0.00	7.84	1.31	0.00	0.00
Half & half	788.92	0.00	0.00	46.41	284.88	0.00	17.64	29.84
Light cream	28.00	0.00	0.11	1.54	0.00	0.00	0.00	0.00
Whipping cream	76.36	0.00	4.49	0.00	22.76	0.00	3.79	0.00
Sour cream	24.18	0.00	1.42	0.00	20.49	0.00	3.42	0.00
Condensed or evaporated milk	65.82	0.00	2.17	1.71	9.97	0.00	1.66	0.00
Nonfat dry milk	86.75	0.00	5.10	0.00	28.44	0.00	4.74	0.00
Dry whole milk	48.75	0.04	2.82	0.00	0.00	0.00	0.00	0.00

Table 25.--Average weekly cost of milk products used by universities or colleges (State), by type of use, 1964

Type of milk	East (7 institutions)				Midwest (2 institutions)			
	Total weekly cost	Average weekly cost for use as			Total weekly cost	Average weekly cost for use as		
		Beverage	Ingredient	Other		Beverage	Ingredient	Other
	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.
Whole milk	12,511.98	1,434.56	295.31	57.60	5,961.76	2,403.78	294.90	285.10
2-percent milk	0.00	0.00	0.00	0.00	458.64	229.32	0.00	0.00
Skim milk	513.72	73.39	0.00	0.00	533.90	236.98	19.98	9.98
Chocolate milk	1,321.78	188.82	0.00	0.00	776.84	388.42	0.00	0.00
Buttermilk	295.00	42.14	0.00	0.00	55.84	27.38	0.54	0.00
Half & half	205.80	0.00	0.00	29.40	152.88	0.00	0.00	76.44
Light cream	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Whipping cream	0.00	0.00	0.00	0.00	361.11	0.00	180.55	0.00
Sour cream	21.60	0.00	3.09	0.00	7.00	0.00	3.50	0.00
Condensed or evaporated milk	1.87	0.00	0.16	0.11	.67	0.00	0.34	0.00
Nonfat dry milk	59.85	0.00	8.55	0.00	0.00	0.00	0.00	0.00
Dry whole milk	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 26.--Average weekly cost of milk products used by food service management companies, by type of use, 1964

Type of milk	East (10 institutions)				Midwest (2 institutions)			
	Total weekly cost	Average weekly cost for use as			Total weekly cost	Average weekly cost for use as		
		Beverage	Ingredient	Other		Beverage	Ingredient	Other
	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.
Whole milk	1,668.73	144.52	7.95	14.40	93.54	28.40	11.99	6.37
2-percent milk	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Skim milk	135.11	13.51	0.00	0.00	1.80	0.90	0.00	0.00
Chocolate milk	532.14	53.21	0.00	0.00	0.00	0.00	0.00	0.00
Buttermilk	80.07	8.01	0.00	0.00	0.00	0.00	0.00	0.00
Half & half	120.00	0.00	0.00	12.00	0.00	0.00	0.00	0.00
Light cream	217.91	0.00	0.47	21.32	0.00	0.00	0.00	0.00
Whipping cream	19.24	0.00	1.92	0.00	0.00	0.00	0.00	0.00
Sour cream	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Condensed or evaporated milk	2.52	0.00	.25	0.00	0.00	0.00	0.00	0.00
Nonfat dry milk	19.80	0.00	1.98	0.00	4.20	0.00	2.10	0.00
Dry whole milk	18.88	0.00	1.89	0.00	0.00	0.00	0.00	0.00

Table 27.--Average weekly cost of milk products used by penal institutions, by type of use, 1964

Type of milk	East (13 institutions)				Midwest (3 institutions)			
	Total weekly cost	Average weekly cost for use as			Total weekly cost	Average weekly cost for use as		
		Beverage	Ingredient	Other		Beverage	Ingredient	Other
	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.
Whole milk	2,441.55	61.16	25.95	100.70	666.86	147.34	29.46	45.44
2-percent milk	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Skim milk	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chocolate milk	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Buttermilk	2.16	0.00	0.17	0.00	.30	0.10	0.00	0.00
Half & half	0.00	0.00	0.00	0.00	5.59	0.00	0.00	1.86
Light cream	17.85	0.00	0.00	1.37	0.00	0.00	0.00	0.00
Whipping cream	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sour cream	0.00	0.00	0.00	0.00	1.80	0.00	0.60	0.00
Condensed or evaporated milk	431.63	0.70	13.61	18.89	15.54	0.00	5.18	0.00
Nonfat dry milk	265.90	1.03	16.47	2.95	5.40	0.00	1.80	0.00
Dry whole milk	68.53	0.17	1.15	3.95	0.00	0.00	0.00	0.00

Table 28.--Average weekly cost of milk products used by children's homes, by type of use, 1964

Type of milk	East (27 institutions)				Midwest (8 institutions)			
	Total weekly cost	Average weekly cost for use as			Total weekly cost	Average weekly cost for use as		
		Beverage	Ingredient	Other		Beverage	Ingredient	Other
	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.	Dols.
Whole milk	1,264.93	38.62	3.15	5.09	334.57	36.30	3.89	1.63
2-percent milk	0.00	0.00	0.00	0.00	54.60	6.14	0.34	0.34
Skim milk	24.43	0.66	0.22	0.03	8.36	1.03	0.00	0.02
Chocolate milk	88.33	3.27	0.00	0.00	0.00	0.00	0.00	0.00
Buttermilk	1.12	0.04	0.00	0.00	2.20	0.19	0.08	0.00
Half & half	5.60	0.00	0.00	0.21	10.79	0.00	0.00	1.35
Light cream	2.94	0.00	0.56	0.55	0.00	0.00	0.00	0.00
Whipping cream	.89	0.00	0.03	0.00	1.68	0.00	0.21	0.00
Sour cream	0.00	0.00	0.00	0.00	4.80	0.00	0.60	0.00
Condensed or evaporated milk	3.26	0.00	0.10	0.02	0.12	0.00	0.02	0.00
Nonfat dry milk	0.27	0.00	0.10	0.00	3.16	0.10	0.06	0.24
Dry whole milk	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 29.--Package sizes for fluid milk used by boarding houses during the week prior to survey, 1965 1/

Type of milk	Tetra: ½ oz. pack: creamers:	½ pints	Pints	1/3 quarts	Quarts	½ gallons	Gallons	10 Quarts	5 gallons	6 gallons	10 gallons	Total quantity
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Quarts
Whole milk	0.0	0.0	0.0	0.0	0.0	7.1	23.1	7.5	0.0	18.4	35.9	8.0	3,480
East	0.0	0.0	0.0	0.0	0.0	10.2	22.8	7.2	0.0	11.5	48.3	0.0	2,436
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	23.8	7.8	0.0	34.5	6.9	26.8	1,044
2-percent milk	0.0	0.0	0.0	0.0	0.0	0.0	15.9	46.9	0.0	17.6	19.6	0.0	1,588
East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	15.9	46.9	0.0	17.6	19.6	0.0	1,588
Skim milk	0.0	0.0	0.0	0.0	0.0	11.4	0.0	2.9	0.0	0.0	85.7	0.0	140
East	0.0	0.0	0.0	0.0	0.0	11.8	0.0	0.0	0.0	0.0	88.2	0.0	136
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	4
Chocolate milk	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61
East	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Buttermilk	0.0	0.0	32.7	0.0	0.0	59.8	7.5	0.0	0.0	0.0	0.0	0.0	27
East	0.0	0.0	38.5	0.0	0.0	52.7	8.8	0.0	0.0	0.0	0.0	0.0	23
Midwest	0.0		0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	4
Half & half	0.0	0.0	1.3	5.0	0.0	93.7	0.0	0.0	0.0	0.0	0.0	0.0	60
East	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	49
Midwest	0.0	0.0	7.0	27.9	0.0	65.1	0.0	0.0	0.0	0.0	0.0	0.0	11
Light cream	0.0	0.0	5.0	5.0	0.0	90.0	0.0	0.0	0.0	0.0	0.0	0.0	10
East	0.0	0.0	5.0	5.0	0.0	90.0	0.0	0.0	0.0	0.0	0.0	0.0	10
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Whipping cream	0.0	0.0	7.2	0.0	0.0	92.8	0.0	0.0	0.0	0.0	0.0	0.0	17
East	0.0	0.0	1.8	0.0	0.0	98.2	0.0	0.0	0.0	0.0	0.0	0.0	14
Midwest	0.0	0.0	33.3	0.0	0.0	66.7	0.0	0.0	0.0	0.0	0.0	0.0	3
Sour cream	0.0	0.0	18.5	22.2	0.0	59.3	0.0	0.0	0.0	0.0	0.0	0.0	7
East	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2/
Midwest	0.0	0.0	15.4	23.1	0.0	61.5	0.0	0.0	0.0	0.0	0.0	0.0	7

1/ Percentages may not add to 100 because of individual rounding.
2/ Less than 1 quart.

Table 30.--Package sizes for fluid milk used by nursing homes and homes for aged during week prior to survey, 1965 1/

Type of milk	Tetra pack	½ oz. creamers	½ pints	Pints	1/3 quarts	Quarts	½ gallons	Gallons	10 quarts	5 gallons	6 gallons	10 gallons	Total quantity
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Quarts
Whole milk	0.0	0.0	26.8	0.0	0.0	19.5	30.9	6.6	0.0	7.2	9.0	0.0	10,618
East	0.0	0.0	16.2	0.0	0.0	25.8	47.2	2.6	0.0	7.4	0.9	0.0	5,436
Midwest	0.0	0.0	37.8	0.0	0.0	13.0	13.9	10.8	0.0	6.9	17.6	0.0	5,182
2-percent milk	0.0	0.0	0.0	0.0	0.0	0.5	72.5	0.0	0.0	9.2	17.8	0.0	2,826
East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest	0.0	0.0	0.0	0.0	0.0	0.5	72.5	0.0	0.0	9.2	17.8	0.0	2,826
Skim milk	0.0	0.0	0.0	9.2	0.0	35.4	33.6	21.8	0.0	0.0	0.0	0.0	661
East	0.0	0.0	0.0	0.0	0.0	50.2	0.0	49.8	0.0	0.0	0.0	0.0	289
Midwest	0.0	0.0	0.0	16.4	0.0	23.9	59.7	0.0	0.0	0.0	0.0	0.0	372
Chocolate milk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Buttermilk	0.0	0.0	4.3	0.0	0.0	95.7	0.0	0.0	0.0	0.0	0.0	0.0	116
East	0.0	0.0	4.5	0.0	0.0	95.5	0.0	0.0	0.0	0.0	0.0	0.0	112
Midwest	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	4
Half & half	0.0	0.0	5.5	6.6	0.0	87.9	0.0	0.0	0.0	0.0	0.0	0.0	296
East	0.0	0.0	0.9	0.0	0.0	99.1	0.0	0.0	0.0	0.0	0.0	0.0	87
Midwest	0.0	0.0	7.4	9.3	0.0	83.3	0.0	0.0	0.0	0.0	0.0	0.0	209
Light cream	0.0	0.0	5.9	94.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17
East	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16
Midwest	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
Whipping cream	0.0	0.0	56.7	23.3	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	15
East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest	0.0	0.0	56.7	23.3	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	15
Sour cream	0.0	0.0	2.6	27.3	0.0	1.7	0.0	68.4	0.0	0.0	0.0	0.0	59
East	0.0	0.0	0.6	0.0	0.0	0.0	0.0	99.4	0.0	0.0	0.0	0.0	41
Midwest	0.0	0.0	6.9	87.6	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	18

1/ Percentages may not add to 100 because of individual rounding.

Table 31.--Package sizes for fluid milk used by hospitals during the week prior to survey, 1965 1/

Type of milk	Tetra pack	½ oz. creamers	½ pints	Pints	1/3 quarts	Quarts	½ gallons	Gallons	10 quarts	5 gallons	6 gallons	10 gallons	Total quantity
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Quarts
Whole milk	0.0	0.0	50.6	0.1	0.0	6.2	8.2	2.4	0.9	10.0	11.6	10.0	77,072
East	0.0	0.0	51.2	0.1	0.0	9.7	6.4	1.0	1.5	13.1	0.7	16.1	46,881
Midwest	0.0	0.0	49.8	0.0	0.0	0.8	11.0	4.4	0.0	5.0	28.6	0.4	30,191
2-percent milk	0.0	0.0	0.0	0.0	0.0	1.0	40.9	0.0	0.0	58.1	0.0	0.0	1,444
East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest	0.0	0.0	0.0	0.0	0.0	1.0	40.9	0.0	0.0	58.1	0.0	0.0	1,444
Skim milk	0.0	0.0	66.9	0.0	0.0	16.8	0.2	0.0	0.0	2.4	13.8	0.0	6,797
East	0.0	0.0	60.5	0.0	0.0	33.7	0.0	0.0	0.0	5.8	0.0	0.0	2,764
Midwest	0.0	0.0	71.3	0.0	0.0	5.2	0.3	0.0	0.0	0.0	23.2	0.0	4,033
Chocolate milk	0.0	0.0	55.6	0.0	0.0	1.5	0.0	0.0	0.0	42.9	0.0	0.0	5,359
East	0.0	0.0	39.0	0.0	0.0	2.0	0.0	0.0	0.0	59.0	0.0	0.0	3,901
Midwest	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,458
Buttermilk	0.0	0.0	61.7	2/	0.0	38.3	0.0	0.0	0.0	0.0	0.0	0.0	1,181
East	0.0	0.0	50.1	0.0	0.0	49.9	0.0	0.0	0.0	0.0	0.0	0.0	684
Midwest	0.0	0.0	77.6	0.1	0.0	22.3	0.0	0.0	0.0	0.0	0.0	0.0	497
Half & half	6.1	1.8	0.0	5.7	0.0	83.3	0.0	0.0	0.0	3.1	0.0	0.0	3,221
East	0.0	3.0	0.0	0.0	0.0	97.0	0.0	0.0	0.0	0.0	0.0	0.0	1,864
Midwest	14.6	0.0	0.0	13.6	0.0	64.4	0.0	0.0	0.0	7.4	0.0	0.0	1,357
Light cream	13.4	21.6	8.7	0.0	0.0	56.3	0.0	0.0	0.0	0.0	0.0	0.0	504
East	0.0	27.2	10.9	0.0	0.0	61.9	0.0	0.0	0.0	0.0	0.0	0.0	401
Midwest	65.2	0.0	0.0	0.0	0.0	34.8	0.0	0.0	0.0	0.0	0.0	0.0	103
Whipping cream	0.0	0.0	0.3	0.0	0.0	99.7	0.0	0.0	0.0	0.0	0.0	0.0	198
East	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	92
Midwest	0.0	0.0	0.5	0.0	0.0	99.5	0.0	0.0	0.0	0.0	0.0	0.0	106
Sour cream	0.0	0.0	0.3	15.8	0.0	24.6	1.3	58.0	0.0	0.0	0.0	0.0	159
East	0.0	0.0	0.0	44.6	0.0	51.8	3.6	0.0	0.0	0.0	0.0	0.0	56
Midwest	0.0	0.0	0.5	0.0	0.0	9.8	0.0	89.8	0.0	0.0	0.0	0.0	103

1/ Percentages may not add to 100 because of individual rounding.
2/ Less than 0.1 percent.

Table 32.--Package sizes for fluid milk used by senior or junior high schools during the week prior to survey, 1965 1/

Type of milk	Tetra: ½ oz. pack	½ pints: creamers	Pints	1/3 quarts	Quarts	½ gallons	Gallons	10 quarts	5 gallons	6 gallons	10 gallons	Total quantity
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Quarts
Whole milk	0.0	0.0	39.3	6.2	0.0	2.4	36.3	0.0	2.9	0.0	0.0	12.9	9,605
East	0.0	0.0	62.1	15.2	0.0	5.9	9.6	0.0	7.2	0.0	0.0	0.0	3,905
Midwest	0.0	0.0	23.6	0.0	0.0	0.0	54.6	0.0	0.0	0.0	0.0	21.8	5,700
2-percent milk	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	653
East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	653
Skim milk	0.0	0.0	81.1	0.0	0.0	18.9	0.0	0.0	0.0	0.0	0.0	0.0	217
East	0.0	0.0	81.1	0.0	0.0	18.9	0.0	0.0	0.0	0.0	0.0	0.0	217
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Chocolate milk	0.0	0.0	73.9	26.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,743
East	0.0	0.0	73.9	26.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,743
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Buttermilk	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	4
East	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	4
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Half & half	0.0	0.0	17.0	0.0	0.0	83.0	0.0	0.0	0.0	0.0	0.0	0.0	53
East	0.0	0.0	22.0	0.0	0.0	78.0	0.0	0.0	0.0	0.0	0.0	0.0	41
Midwest	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	12
Light cream	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	2
East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	2
Whipping cream	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	2
East	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	2
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Sour cream	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	12
East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	12
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

1/ Percentages may not add to 100 because of individual rounding.

Table 33.--Package sizes for fluid milk used by universities (endowed) during the week prior to survey, 1965 1/

Type of milk	Tetra pack	½ oz. creamers	½ pints	Pints	1/3 quarts	Quarts	½ gallons	Gallons	10 quarts	5 gallons	6 gallons	10 gallons	Total quantity
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Quarts
Whole milk	0.0	0.0	13.0	7.5	0.0	3.5	4.3	0.0	0.0	18.8	31.4	21.5	70,675
East	0.0	0.0	17.4	10.0	0.0	4.7	4.4	0.0	0.0	25.1	36.1	2.3	52,883
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0	0.0	17.5	78.7	17,792
2-percent milk	0.0	0.0	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.4	81.2	1,380
East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest	0.0	0.0	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.4	81.2	1,380
Skim milk	0.0	0.0	35.1	0.0	0.0	0.8	12.2	0.0	0.0	16.1	28.9	6.9	6,972
East	0.0	0.0	38.5	0.0	0.0	0.7	13.9	0.0	0.0	18.3	20.8	7.8	6,116
Midwest	0.0	0.0	11.5	0.0	0.0	1.6	0.0	0.0	0.0	0.0	86.9	0.0	856
Chocolate milk	0.0	0.0	20.9	0.0	0.0	5.8	0.0	0.0	0.0	7.6	65.7	0.0	9,277
East	0.0	0.0	21.4	0.0	0.0	6.2	0.0	0.0	0.0	8.1	64.3	0.0	8,696
Midwest	0.0	0.0	13.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	86.7	0.0	581
Buttermilk	0.0	0.0	90.7	0.0	0.0	9.3	0.0	0.0	0.0	0.0	0.0	0.0	474
East	0.0	0.0	96.4	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	446
Midwest	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	28
Half & half	0.0	1.3	3.2	1.4	0.0	94.1	0.0	0.0	0.0	0.0	0.0	0.0	2,372
East	0.0	1.7	0.0	0.0	0.0	98.3	0.0	0.0	0.0	0.0	0.0	0.0	1,889
Midwest	0.0	0.0	15.5	6.6	0.0	77.9	0.0	0.0	0.0	0.0	0.0	0.0	483
Light cream	0.0	54.6	0.0	0.0	0.0	45.4	0.0	0.0	0.0	0.0	0.0	0.0	31
East	0.0	54.6	0.0	0.0	0.0	45.4	0.0	0.0	0.0	0.0	0.0	0.0	31
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Whipping cream	0.0	0.0	0.0	0.0	0.0	81.7	18.3	0.0	0.0	0.0	0.0	0.0	109
East	0.0	0.0	0.0	0.0	0.0	75.3	24.7	0.0	0.0	0.0	0.0	0.0	81
Midwest	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	28
Sour cream	0.0	0.0	0.0	16.3	0.0	22.8	0.0	60.9	0.0	0.0	0.0	0.0	93
East	0.0	0.0	0.0	0.9	0.0	39.3	0.0	59.8	0.0	0.0	0.0	0.0	54
Midwest	0.0	0.0	0.0	37.7	0.0	0.0	0.0	62.3	0.0	0.0	0.0	0.0	39

1/ Percentages may not add to 100 because of individual rounding.

Table 34.--Package sizes for fluid milk used by universities (State) during the week prior to survey, 1965 1/

Type of milk	Tetra pack	½ oz. creamers	½ pints	Pints	1/3 quarts	Quarts	½ gallons	Gallons	10 quarts	5 gallons	6 gallons	10 gallons	Total quantity
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Quarts
Whole milk	0.0	0.0	3.1	0.0	0.0	1.7	0.0	0.0	0.0	52.7	38.2	4.3	103,280
East	0.0	0.0	4.4	0.0	0.0	2.8	0.0	0.0	0.0	83.8	5.2	3.8	64,920
Midwest	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.2	5.1	38,288
2-percent milk	0.0	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	96.9	0.0	3,864
East	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	120
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	3,744
Skim milk	0.0	0.0	2.3	18.2	0.0	8.5	0.0	47.9	0.0	19.7	3.4	0.0	7,098
East	0.0	0.0	2.3	12.0	0.0	22.9	0.0	0.0	0.0	53.6	9.2	0.0	2,613
Midwest	0.0	0.0	2.3	21.9	0.0	0.0	0.0	75.8	0.0	0.0	0.0	0.0	4,485
Chocolate milk	0.0	0.0	14.8	0.0	0.0	2.8	0.0	0.0	0.0	42.3	31.3	8.8	11,351
East	0.0	0.0	18.0	0.0	0.0	4.9	0.0	0.0	0.0	73.4	3.7	0.0	6,538
Midwest	0.0	0.0	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	68.8	20.8	4,813
Buttermilk	0.0	0.0	18.1	0.0	0.0	0.8	0.0	0.0	0.0	81.1	0.0	0.0	1,726
East	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	96.9	0.0	0.0	1,444
Midwest	0.0	0.0	95.4	0.0	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	282
Half & half	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	662
East	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	326
Midwest	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	336
Light cream	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Whipping cream	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	496
East	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	28
Midwest	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	468
Sour cream	0.0	0.0	0.0	54.5	0.0	0.0	0.0	45.5	0.0	0.0	0.0	0.0	44
East	0.0	0.0	0.0	85.7	0.0	0.0	0.0	14.3	0.0	0.0	0.0	0.0	28
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	16

1/ Percentages may not add to 100 because of individual rounding.

Table 35.--Package sizes for fluid milk used by food service management companies 1/ during the week prior to survey, 1965 2/

Type of milk	Tetra: ½ oz. pack	½ oz. creamers	½ pints	Pints	1/3 quarts	Quarts	½ gallons	Gallons	10 quarts	5 gallons	6 gallons	10 gallons	Total quantity
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Quarts
Whole milk	0.0	0.0	34.5	29.9	0.0	0.8	10.5	6.3	0.0	13.4	4.6	0.0	7,907
East	0.0	0.0	37.6	32.5	0.0	0.0	11.4	0.0	0.0	14.6	3.9	0.0	7,275
Midwest	0.0	0.0	0.0	0.0	0.0	9.5	0.0	79.1	0.0	0.0	11.4	0.0	632
2-percent milk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Skim milk	0.0	0.0	99.8	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	602
East	0.0	0.0	99.8	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	587
Midwest	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15
Chocolate milk	0.0	0.0	46.1	38.6	14.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	1,807
East	0.0	0.0	46.1	38.6	14.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	1,807
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Buttermilk	0.0	0.0	73.6	4.6	21.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	306
East	0.0	0.0	73.6	4.6	21.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	306
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Half & half	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	528
East	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	528
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Light cream	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	314
East	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	314
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Whipping cream	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	24
East	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	24
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Sour cream	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

1/ Feeding operations conducted by food service management companies.
2/ Percentages may not add to 100 because of individual rounding.

Table 36.--Package sizes for fluid milk used by penal institutions during the week prior to survey, 1965 1/

Type of milk	Tetra pack	½ oz. creamers	½ pints	Pints	1/3 quarts	Quarts	½ gallons	Gallons	10 quarts	5 gallons	6 gallons	10 gallons	Total quantity
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Quarts
Whole milk.....	0.0	0.0	0.5	0.0	0.0	28.3	1.8	29.4	0.0	0.0	0.0	40.0	24,277
East.....	0.0	0.0	0.6	0.0	0.0	35.7	2.3	10.9	0.0	0.0	0.0	50.5	19,241
Midwest.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	5,036
2-percent milk..	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
East.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Skim milk.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
East.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Chocolate milk..	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
East.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Buttermilk.....	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	11
East.....	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	8
Midwest.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
Half & half.....	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11
East.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest.....	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11
Light cream.....	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	21
East.....	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	21
Midwest.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Whipping cream..	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
East.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Sour cream.....	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	3
East.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest.....	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	3

1/ Percentages may not add to 100 because of individual rounding.

Table 37.--Package sizes for fluid milk used by children's homes and orphanages during the week prior to survey, 1965 1/

Type of milk	Tetra: ½ oz. pack	½ oz. creamers	½ pints	Pints	1/3 quarts	Quarts	½ gallons	Gallons	10 quarts	5 gallons	6 gallons	10 gallons	Total quantity
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Quarts
Whole milk	0.0	0.0	26.7	0.0	0.0	25.1	34.3	8.5	0.0	0.0	5.4	0.0	7,128
East	0.0	0.0	35.3	0.0	0.0	30.3	23.8	6.2	0.0	0.0	4.4	0.0	5,396
Midwest	0.0	0.0	0.0	0.0	0.0	8.9	67.3	15.5	0.0	0.0	8.3	0.0	1,732
2-percent milk	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	312
East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	312
Skim milk	0.0	0.0	12.2	0.0	0.0	54.8	27.7	5.3	0.0	0.0	0.0	0.0	152
East	0.0	0.0	18.2	0.0	0.0	81.8	0.0	0.0	0.0	0.0	0.0	0.0	102
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	84.0	16.0	0.0	0.0	0.0	0.0	50
Chocolate milk	0.0	0.0	79.4	0.0	0.0	20.6	0.0	0.0	0.0	0.0	0.0	0.0	373
East	0.0	0.0	79.4	0.0	0.0	20.6	0.0	0.0	0.0	0.0	0.0	0.0	373
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Buttermilk	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	17
East	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	5
Midwest	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	12
Half & half	0.0	0.0	0.0	83.6	0.0	16.4	0.0	0.0	0.0	0.0	0.0	0.0	31
East	0.0	0.0	0.0	80.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	10
Midwest	0.0	0.0	0.0	85.4	0.0	14.6	0.0	0.0	0.0	0.0	0.0	0.0	21
Light cream	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
East	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Whipping cream	0.0	0.0	71.4	28.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
East	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2/
Midwest	0.0	0.0	66.7	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
Sour cream	0.0	0.0	16.7	16.7	0.0	0.0	0.0	66.7	0.0	0.0	0.0	0.0	6
East	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Midwest	0.0	0.0	16.7	16.7	0.0	0.0	0.0	66.7	0.0	0.0	0.0	0.0	6

1/ Percentages may not add to 100 because of individual rounding.
2/ Less than one quart.

Table 38.--Nonfat dry milk used week prior to survey, by region, type of institution, and packaging, 1965 1/

Type of institution	Premeasured packages	1-lb. bag or can	4½-lb. bag or can	5-lb. bag or box	50-lb. bag or drum	100-lb. bag or drum	40-lb. bag or drum	25-lb. bag or drum	3½-lb. bag or drum	2-lb. box	250-lb. drum	Total quantity
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Quarts
Boarding houses:	0.0	10.5	3.2	4.3	29.1	17.5	0.0	8.4	26.9	0.1	0.0	715.00
East	0.0	20.2	6.2	5.6	0.0	0.0	0.0	16.1	51.6	0.3	0.0	372.00
Midwest	0.0	0.0	0.0	0.0	60.6	39.4	0.0	0.0	0.0	0.0	0.0	343.00
Nursing homes and homes for aged:	2.7	7.4	5.3	45.7	13.5	18.6	4.8	0.0	2.0	0.0	0.0	2,623.00
East	4.3	11.5	7.4	44.6	7.4	14.2	7.4	0.0	3.2	0.0	0.0	1,680.00
Midwest	0.0	0.0	1.6	47.7	24.2	26.5	0.0	0.0	0.0	0.0	0.0	943.00
Hospitals:	2.8	2.4	40.8	33.5	20.5	0.0	0.0	0.0	0.0	0.0	0.0	10,591.00
East	3.5	2.9	50.5	37.6	5.5	0.0	0.0	0.0	0.0	0.0	0.0	8,575.00
Midwest	0.0	0.0	0.0	15.8	84.2	0.0	0.0	0.0	0.0	0.0	0.0	2,016.00
Senior or junior high schools (private):	0.0	46.8	21.7	0.0	31.5	0.0	0.0	0.0	0.0	0.0	0.0	715.00
East	0.0	68.4	31.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	490.00
Midwest	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	225.00
Universities (endowed):	0.0	5.0	0.0	17.3	42.4	35.3	0.0	0.0	0.0	0.0	0.0	2,510.00
East	0.0	6.8	0.0	21.2	36.1	35.9	0.0	0.0	0.0	0.0	0.0	1,840.00
Midwest	0.0	0.0	0.0	6.7	59.7	33.6	0.0	0.0	0.0	0.0	0.0	670.00
Universities (State):	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	1,150.00
East	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	1,150.00
Midwest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Food service management companies: 2/	0.0	0.0	0.0	33.3	66.7	0.0	0.0	0.0	0.0	0.0	0.0	525.00
East	0.0	0.0	0.0	41.2	58.8	0.0	0.0	0.0	0.0	0.0	0.0	425.00
Midwest	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00
Penal institutions:	2.1	0.7	0.0	19.2	3.7	2.2	0.0	0.0	0.0	0.0	72.1	6,769.00
East	2.2	0.8	0.0	19.6	3.8	0.0	0.0	0.0	0.0	0.0	73.6	6,619.00
Midwest	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	150.00
Children's homes and orphanages:	3.4	0.0	85.7	5.3	1.0	0.0	0.0	0.0	0.0	4.6	0.0	1,038.00
East	3.9	0.0	87.5	3.3	0.0	0.0	0.0	0.0	0.0	5.3	0.0	905.00
Midwest	0.0	0.0	73.7	18.8	7.5	0.0	0.0	0.0	0.0	0.0	0.0	133.00

1/ Percentages may not add to 100 because of individual rounding.
2/ Feeding operations conducted by food service management companies.

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